The Evolution of Electronic Photography

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Abstract

Silver-based photography was invented in the mid-1800s, and has existed in its modern form for over 100 years. More than 60 million film cameras will be sold this year, a larger number than for any previous year. In spite of the explosion in digital technology for other applications, digital camera technology still produces images that are vastly inferior to film images. Recent developments in silicon image sensors have made possible the direct capture of images that exceed the quality of film images.

Over the next decade, cameras based on these principles will supplant film cameras in nearly all applications. In many ways, electronic photography has gone through evolutionary steps closely paralleling those experienced in the early days of film photography. The current leading-edge technology will be discussed, with referenced to its place in the evolutionary sequence.

Biography

Carver A. Mead, Gordon and Betty Moore Professor of Engineering and Applied Science, has taught at the California Institute of Technology in Pasadena, California for over thirty years. His current focus and teachings are in the area of VLSI design, ultra-concurrent systems, and physics of computation. Having pioneered in the fields of solid-state electronics and the management of complexity in the design of very large scale integrated circuits, he has been the leading force in the development of a design methodology for VLSI. This field has seen a merger of semiconductor and computer technologies. He has written and contributed to over 100 publications covering his wide range of interests in solid-state physics, microelectronics, and biophysics. Holding a number of patents in these fields, he has written, with Lynn Conway, the standard text for VLSI design, "Introduction to VLSI Systems" He has also had extensive experience as a consultant to industry.